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The Correlation between Athletic Intrinsic Motivation and Academic Intrinsic Motivation of Student Athletes at the Secondary Level

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THE CORRELATION BETWEEN ATHLETIC INTRINSIC MOTIVATION AND ACADEMIC INTRINSIC MOTIVATION OF STUDENT ATHLETES AT THE SECONDARY LEVEL

by

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DEDICATION

I dedicate this capstone to my parents, who have sacrificed for the success of all their children.

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This capstone would not have been possible without the guidance and encouragement of my Capstone Advisory Committee, Dr. Jennifer Carlson, Amy Walker, and Jill Burnson. I would also like to acknowledge my Upma, who has taught me the importance of an education and how it empowers individuals to overcome adversity.

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Chapter One: Introduction

Rationale

What is the difference between a student and an athlete? They both invest their time and skills toward a desired outcome; students study reading, writing, math, science, and history while athletes study strategies, techniques, readiness, positioning, and plays. According to the 2014 National Federation of State High School Associations in the United States Handbook over 7.5 million high school students are also athletes and even more participate in other extracurricular activities (National Federation of State High School Handbook 2014). Looking back on my own high school career, many students spent time beyond 8am to 3pm at school being a part of a team, club, activity, or squad. Being a part of these activities allowed students to miss classes, have their afternoons off for meets, practices and games, and have a higher recognition in the community. Through these extracurricular activities students had the opportunity to further their educations via scholarships to accredited colleges and universities. Student athletes often had an edge in playing the "game" of school.

Research Question

Research indicates that students who participate in extracurricular activities tend to finish high school with overall higher grades (Reeves 2008). My capstone is focused on answering the question, "*Is there a correlation between athletic intrinsic motivation and academic intrinsic motivation of student athletes at the secondary level*?" The purpose of this capstone is to identify the source of the motivation and the significance of its transference between athletics and academics.

Background

I reflected upon my own academic and athletic experiences to help discover my capstone question. My earliest memories are about athletics, in particular my activity of choice, ice hockey.

As a child playing year around sports, such as soccer and ice hockey, I never realized that being a successful student and a successful athlete often held similar traits. School was something I was required to do, while athletics were a privilege and my sanctuary away from academics.

As my athletic focus shifted towards only ice hockey I excelled, eventually earning multiple scholarships to a small private college in Minnesota. It was during this time, I realized the importance of academic success in conjunction with athletics. As graduation approached, I struggled to find a way to keep both academics and athletics in my life. Rather than sacrificing valuable ice and playing time to complete the student teaching requirements during my undergraduate work, I continued on to graduate school in pursuit of my teaching license and Masters of Arts in Teaching Degree.

During my licensure program, I was introduced to the concept of intrinsic motivation. I had always been aware of extrinsic motivation, external rewards or aversion to negative external stimuli to do well, both within the classroom and on the ice. In the classroom, I worked hard to make the "A" grade and get the "gold star". At the same time on the ice, I practiced over and over again, refining my skills so that I could score goals and watch my stats grow. The results were accolades from instructors, coaches and teammates.

Both athletes and non-athlete students have factors that motivate them extrinsically to strive for success. As a practicing educator, I have noted that overall students who participate in extracurricular athletics tend to reach high levels of performance in academics. Why is this? Is it because they are good at "practicing"? Or is it because they are motivated to improve themselves under their own control, reaching individual goals, and mastery of interests?

There are differences between athletics and academics. Students choose to participate in athletics, where academic attendance is mandated by law. In addition to state law, many attend school because local school board policy requires minimum attendance standards to participate in extracurricular athletics. Very few of the students I have worked with demonstrate intrinsic motivation towards academics. I witness more students practicing their athletic skills willingly on their free time, rather than studying, reading or researching academics.

My capstone project has been designed to conduct research identifying if there is a correlation between student athlete's athletic intrinsic motivation and their academic intrinsic motivation. USA News Education claims that in 2011, 55.5% of high school students were also athletes with that number only growing (Koebler, 2011). As a teacher in a high school where that student athlete percentage is at 52 and climbing, determining if student athletes are more intrinsically motivated toward academics will be useful in determining how to best meet student needs overall. Researching this information will help identify characteristics that can be used to support higher academic achievement among all students.

Overview

This capstone project is focused on intrinsic motivation and if student athletes transfer intrinsic motivation from athletics to their academics. Athletics and academics are similar in their discipline and training toward success and by determining intrinsic motivations of student athletes in schools may encourage the growth of school athletics programs as a means to help facilitate growth in academic mastery.

This capstone project is laid out in subsequent sections which include a literature review, methods discussion, results analysis, and conclusion. The literature review supports previous research in this area. The methods discussion will identify the research plan, rationale for the plan, research instruments, and data analysis techniques utilized. The result section includes a summary of analytical information and how it correlates to the literature review and the research questions. It concludes with an in depth reflection of what has been learned through the data analysis, literature review and capstone process.

Chapter Two: Literature Review

In chapter one, I discussed how I arrived at my research question of, "*Is there a correlation between athletic intrinsic motivation and academic intrinsic motivation of student athletes at the secondary level?*" In this chapter, I will review current literature on topics related to my research question which include intrinsic motivation and academic success. This information gained from these topics has been paramount to the development of the methodologies used in this capstone project. The literature review supports findings and results of this capstone.

Intrinsic Motivation

When breaking down the word motivation, Charles and Senter refers to the term "motive" which comes from the Latin root meaning "to move". It is the 'why' that is defined as a desire that urges us to do something (as cited by Cheng & Yeh, 2009, p. 597). Both in the academic and athletic world individuals must attempt to "move" to improve their skills and knowledge. Students/athletes are "moved" or "motivated" to move in a direction that increases their success academically or athletically. What "moved" the student/athlete is that which touched their innermost being and ignited the desire to change from one place (lower expectations in grades/academic success) to another place of (higher expectations in grades/academic success). Through this research I strove to discover if there is a correlation between the internal forces (intrinsic motivation) of student athletes between their athletics and their academics.

Coaches and teachers attempt to support movement within their athletes and students from one path to another, encouraging higher achievement and greater success. Supporting athletes and students in their movement forward can result in greater success in the workplace, encouraging them to become a contributing member of society, ultimately helping move society forward and towards a higher level (Sanacore, 2008).

Identifying motivational factors helps support strategies to ensure success. On the athletic field or in the classroom, when an adolescent takes part in the direction in which their lives are moving, they are more likely to continue on the path to success. As coaches and teachers, we work towards students becoming self-motivated. In other words, "Intrinsic motivation is an internal state or condition that arouses us to action, directs and persists our behavior, and engages us in certain activities" (as stated by Cheng & Yeh, 2009, p. 597).

The two forefathers of intrinsic motivation research Richard Ryan and Edward Deci define intrinsic motivation as "doing something for the inherent satisfaction involved and is highly autonomous" (as cited by Jootin, Bundy, & Einfeld, 2008, p. 522). It was after Deci and Ryan's initial research in 1975 that other researchers became interested in intrinsic motivation and assessing the internal drive of individuals.

When studying intrinsic motivation, most research stems from the "Cognitive Evaluation Theory" developed by Deci and Ryan (Deci, 1975; Deci & Ryan, 1985). This theory identifies two main determinants of intrinsic motivation to include: (a) the

degree to which individuals feel self-determining in their environment and (b) the extent to which individuals feel competent in a particular domain (Amarose & Horn, p. 356).

In contrast to the Cognitive Evaluation Theory, Omrod claims that intrinsic motivation occurs when the cause of the motivation exists within an individual and task. (as cited by Cheng & Yeh, 2009, p. 597). These slightly different thoughts of intrinsic motivation are similar in the fact that they both include that intrinsic motivation is within an individual. In researching athletic and academic intrinsic motivation coaches and teachers are support and guidance figures to student athletes; it is the student athlete's individual motivation to obtain success.

Successful coaches and teachers must tackle the job of nurturing intrinsic motivation within their athletes or students. Reeves claims (as stated by Cheng & Yeh, 2009, p.598) that intrinsic motivation emerges spontaneously from psychological needs, personal curiosities, and innate striving for growth. In the same article Brophy (2012, p. 598) states that intrinsic motivation is also, "the emphasis shifting from reinforcement to self-determination and self-regulation of actions". Athletes and students must shift from external motivation sources of reinforcement rewards from coaches and teachers, to intrinsic motivational sources by engaging in self-determining and regulating activities that develop needs, curiosity and personal growth this can be achieved through independent studies, online learning and other autonomous learning situations.

Secondary level athletes and students with intrinsic motivation are able to determine and regulate preparations for future success independently. Intrinsic

motivation cannot be taken away or removed from oneself, but used as a starting block for higher achievement and success. Examples that show intrinsic motivation in athletes and students included; the likelihood of selecting more challenging tasks, interesting activities, promoting greater creativity and better conceptual learning, and finding greater pleasure and more active involvement in activities (Reeves, 2005). This information is beneficial for coaches and teachers to develop autonomous learning plans for student athletes where the student athlete is more engaged in their athletic and academic careers.

Lepper and Greene(as cited by McAuley, Duncan, & Tammen, 1989) state previous studies on intrinsic motivation were done by secretly observing the behavior of participants time spent on a task with extrinsic rewards given and their willingness to repeat the behavior . Other questionnaire methods were used to measure intrinsic motivation by asking participants questions such as, "How much they enjoyed the activity?" and "How often they participate in the activity?" (Ryan 1977, 1980). From these early assessments of intrinsic motivation the most commonly used type of intrinsic motivation assessment tool was the Intrinsic Motivation Inventory (IMI) developed by Ryan and the Rochester Motivation Research Group in 1982.

The IMI determines a participant's level of intrinsic motivation as an additive function of underlying dimensions of interest-enjoyment, perceived competence, effort, and pressure-tension. (McAuley Duncan Tammen, p. 49) Ryan and Deci developed the IMI to a multidimensional measure of participants' experiences to a task. The IMI is a malleable form that allows for easy modification to cover a variety of activities. (McAuley, Duncan & Tammen, p. 49) The development of intrinsic motivation

questionnaires and the IMI have enabled me use the Sports Motivational Survey (SMS) and Academic Motivation Survey (AMS) to determine if there is a correlation between athletic intrinsic motivation and academic intrinsic motivation of secondary level student athletes.

Importance for Academic Success

Academic success can be defined as many things, including but not limited to: graduating high school, passing classes, receiving all A's, or scoring a perfect 36 on the American College Test (ACT). Higher achievement academically leads individuals to higher paying job, money or gifts from relatives and scholarships for further education. Individual states assess academic success through mandated testing. These assessments are typically used to mark academic success and result in external motivation for secondary students.

Over 7.5 million high school students participate in interscholastic athletics each year according to the National Federation of State High School Association. In the state of Missouri the number of high school student athletes was 172,494 according to the NFHS Summary of Athletics participation 2013-2014. The NFHS supports the well-rounded formation of young adults through athletics and academics in their mission statement, "... students providing leadership for the administration of education-based interscholastic activities, which support academic achievement, good citizenship and equitable opportunities" (National Federation of State High School Handbook 2014).

The number of student athletes in the United States is on the rise according to Koebler (2011) showing an increase for the 22nd consecutive year. With the number of student athletes increasing along with the, demand for higher academic performance of students by the enactment of "No Child Left Behind" and "Race to the Top", does academic success take priority or does athletics aid in the academic achievement and success of student athletes? According to Reeves (2008), "students who participate in at least one and no more than four extracurricular activities have a higher level of academic performance than their counterparts who do not participate in extracurricular activities". It should than be followed, what is it about participating in extracurricular athletics that increases academic performance levels?

Athletics and academics have many transferable qualities both requiring an individual to work hard, be self-disciplined, exhibit perseverance, and determination (Simon, Van Rheenen & Convington, 1999, p.151). All of these qualities are also noted when discussing intrinsic motivation. The Cognitive Evaluation Theory, which grew into the Intrinsic Motivation Inventory, assumes that intrinsic motivation will vary across time depending on experiences of the individual. (Deci 1975, Deci & Ryan 1985). Based on this premise, Amorose and Horn (2001) challenged this idea and studied the intrinsic motivation of collegiate athletes throughout the athletic season. During my research and capstone I will be determining if student athletes at Marionville High school have more intrinsic motivation toward their academics than athletics.

Academic Intrinsic Motivation

When shifting from athletic to academic motivation, the definition and context of intrinsic motivation does not change significantly, however the reasons for the motivation does change significantly. In a classroom context, motivation refers to students' subjective experiences. Emphasizing students' willingness to participate in class activities and their reasons for doing so (Brophy 2004). Teachers attempt to encourage students to achieve their potential, not for good grades or rewards, but because having students working at their potential will allow the student to become self-sufficient and self-driven.

Motivation can vary between individual students. Each student in a classroom may have similar short term goals, such as passing the class, but individual long term goals may vary from becoming an executive president at a bank to holding a minimum wage job. This variation is further discussed by Shore (as cited by Sanacore 2008, p. 40) when he states, "Students' motivation can vary, depending on the subject, setting, and teaching style".

Athletic Intrinsic Motivation

Students athletes often decide to favor athletics over academics when conflicts exist between the demands of the two. This is visible during many end of the school day classes (Simmons, Van Rheenen, & Covington, p.158). Late classes are often void of athletes who have left for evening competitions. Though schools attempt to schedule competitions around the regular school hours it is not always possible, and given the option athletes often choose the athletic competition over the academic classroom.

Amarose and Horn (2000) have indicated that studying athletic intrinsic motivation is a way for coaches and athletes to better develop training-instruction and coaching methods. Their research supports coaches who develop athletes to feel that personal control in their sport may contribute to higher levels of intrinsic motivation both on and off the field (Amarose & Horn, 2000, p.367). Further analysis of this research suggests differences among genders as well.

In a study conducted by Turkmen in 2013 involving collegiate athletes, female athletes demonstrated higher levels of intrinsic motivation toward their sports than their male counterparts. This data is confirmed again by Simmons, Van Rheenen & Convington (1999). In their analysis, they suggest a cause for this is could be due to the lack of extrinsic rewards available and limited possibility of professional athletic careers for female athletes.

Conclusion

This chapter reviewed previous studies and literature relating to athletic and academic intrinsic motivation, and academic success. With the information gathered, the foundation and development of my action research capstone was created to determine, *If there is a correlation between academic and athletic intrinsic motivation of student athletes at the secondary level*? In the next chapter, I will discuss the methods and procedures used to collect research data from participants of this study.

Chapter Three: Methods

In this chapter I will discuss the action research methods implemented for this Capstone Project. This chapter is designed to set out the specific procedures utilized to answer the research question posed and determine if there is a correlation between athletic and academic intrinsic motivation in secondary level student athletes. The results of the study will be shared with educational and athletic staff members in an effort to increase student performance and achievement in both areas.

Rationale

To answer my research question, I have utilized the Sports Motivation Survey (SMS) and the Academic Motivation Survey (AMS) to collect data from qualified participants. These surveys are adaptations of the Intrinsic Motivation Inventory (IMI) designed specifically to collect data pertinent to athletic and academic motivation. Due to the age of student participants in my research, the SMS and AMS were modified into one survey and a four point Likert scale. The survey that participants completed is located in Appendix A.

Setting:

The site of research study was Marionville High School, a rural high school in southwest Missouri, with a student population of 207, grades nine through twelve. According to Missouri Department of Elementary and Secondary Education (2014), Marionville High School is 97.8% white population and has an enrollment of 52.9% in the Free/Reduced Lunch program during 2014 school year. Marionville's Athletic Director, Todd Bassore, (personal communication, April 1, 2015) has indicate that 52%

of high school students actively participate in school sponsored athletics.

Methods:

High school student athletes who returned a signed parental consent forms and actively participated in extracurricular athletics were surveyed using the Sports Motivation Scale (SMS) designed by Pelletier in 1995 and the Academic Motivation Scale (AMS) designed by Vallerand and et al. in 1993. These scales measured their intrinsic motivation towards athletics and the measured intrinsic motivation towards academics respectively. Each of these tools assesses seven types of motivation including; intrinsic motivation toward knowledge, accomplishment and stimulation, external motivation, introjected and identified regulations, and amotivations (which is defined as lacking motivation toward activity). The original surveys each contains 28 items (four items for each of the seven subscales) assessed on a seven point Likert scale.

The surveys were compiled into a Google Form to allow ease of distribution to qualified participants. The overall survey was modified to a four point Likert scale due to the age of participants and a desire to solicit a more precise response. Answers were compiled automatically into a Google Sheets which allowed for organization, analysis of data and viewing access by my Capstone Advisory Team.

All identified student athletes were given a consent form explaining the research, risks, and rights of participants and parents/guardians. Willing participants returned signed contracts to myself by May 1, 2015. Qualified participants were given access to the Intrinsic Motivation survey form through their individual marionville.us Google

domain account in early May 2015. Access to the research survey form was open for one week so that participants could answer the questionnaires at their convenience without impacting their athletic and academic obligations during the school day.

By sending a link to the research survey, through the qualified participants' individual marionville.us Google domain account, allowed the participants to complete the survey in a private environment of their choosing. This method allowed data collection from participants without contact between proctor and participant. Data collected contains date, time, and completed survey questions with no individual identifying demographic information collected. Surveys were anonymous.

To ensure the confidentiality of all research participants the mean, standard deviation, and t-tests were calculated. The mean was calculated for the SMS and SMS to determine the central tendency of the data and omit outlying data points that could possibly identify participants due to the smaller sample size. A standard deviation was calculated to determine the normal distribution of data. Standard deviation indicates the acceptable range of data points. The standard deviation calculations were used to determine intrinsic motivation values and ranges. A t-test was calculated to determine if the hypothesis of two sets of data were significant to each other statistically. This calculation was used between the SMS and the AMS.

Grouping data by the above calculations ensured that no individual participants' information will be singled out at any point during the research or publication. Data spreadsheets were password protected and only accessible by those granted permission

by the researcher. Upon completion of the study, Capstone completion and graduation, all data collected will be destroyed. Due to the structure of the questions posed, identifying data was not collected, thus avoiding violation of an individual's confidentiality. In the event that there is identifying information provided, said information was removed in the final report.

Table 1 shows the demographics of the 78 participants of the action research project, the mean age and the standard deviation of the ages.

Table 1: Gender and Age Distribution of Sample Group

	N	**(age)**	**SD (years)**
All	78	16.6	1.14
Female	34	16.3	1.04
Male	45	16.7	1.18

Benefits

The objective of this study was to determine if there is a correlation between athletic intrinsic motivation and academic intrinsic motivation among student athletes at the secondary level. Based on research, it is expected that student athletes will tend to have higher academic success than non-athletic counterparts. This study attempted to determine if high school students, who actively participate in athletic activities, apply intrinsic motivation to academics. An anticipated benefit to participants of this study is the increased awareness of the concept of intrinsic motivation in both athletics and academics supporting higher performance and achievement levels in both areas.

Potential benefits for a professional audience will be that the data analyzed will help identify the academic benefits of athletic participation by secondary students. An

additional benefit to this data analysis is that both coaches and instructors can get a better picture of secondary student motivation.

Conclusion

In this chapter I outlined the methods of this action research project by discussing the setting and participant qualifications. In the next chapter, I will discuss the statistical analysis of the collected data and will evaluate the findings. The ultimate goal is to provide interested coaches and teachers statistically proven information that supports encouragement to work towards instilling intrinsic motivation within secondary students and athletes.

Chapter Four: Results

Chapter three outlined the procedures of how data on intrinsic motivation was collected from participating student athletes at Marionville High School. This chapter offers analysis and interpretation of the collected data. Raw data calculations were used to determine the correlation and significance between athletic and academic intrinsic motivation, the correlation between males and females, and among primary sports.

The data collected from the Athletic Motivation Survey (AMS) and Sports Motivation Survey (SMS) are presented in the following tables. The goal of this action research project was to determine, *If there is a correlation between athletic and academic intrinsic motivation of student athlete at a secondary level*? This results of this study determined that there is a correlation between athletic and academic motivation of student athletes at the secondary level. The correlation was found to be an R-Value of -0.805, a strong negative correlation, indicating that student athletes have higher intrinsic motivation towards athletics than academics.

Data from AMS and SMS

Marionville High School students athletes, with given parental consent, responded to the AMS and SMS surveys that were sent through marionville.us Google accounts. 78 participants (33 females, 45 males) completed the survey. Demographic data collected indicated the average age of the participant was 16 years old and held a 3.40 grade point average on a traditional 4.0 point scale. Data indicated that female participants held a higher grade point average of 3.63 compared to their male counterparts that reported an average of 3.23 on the same 4 point scale. The data

collected also indicated that football was the sport with the highest participation rate of 23 participants, while track had the lowest participation rate with three participants. The following tables dissect the data collected into observable trends.

Table 2 describes the average and standard deviation of motivation for SMS and AMS. The table is subdivided into averages for genders, motivation type, and subscales. The data in this table shows the tendencies of types of motivations amongst the 78 responding participants in athletics and academics and which sub-scale the motivation is focused on specifically.

Table 2: Descriptive for academic and sports motivation orientation sub scales

	ALL- N=78				**FEMALES- N=33**				**MALES- N=45**			
	Sports		**Academics**		**Sports**		**Academics**		**Sports**		**Academics**	
Motivation Sub Scales	□	**SD**	□	**SD**	□	**SD**	□	**SD**	□	**SD**	□	**SD**
IM- TO KNOW	2.92	0.104	2.92	0.076	3.04	0.174	3.04	0.132	2.83	0.066	2.83	0.142
IM-TO ACCOMPLISH	3.19	0.210	2.75	0.050	3.23	0.174	2.98	0.117	3.16	0.246	2.59	0.038
IM-TO EXPERIENCE STIMULATION	3.26	0.159	2.16	0.024	3.24	0.131	2.27	0.090	3	0.192	2.10	0.084
Average INTRINSIC	**3.12**		**2.61**		**3.17**		**2.76**		**3.09**		**2.51**	
EM-IDENTIFICATION	2.95	0.187	3.36	0.100	3.01	0.132	3.54	0.134	2.91	0.266	3.23	0.122
EM- INTROJECTED	2.27	0.087	3.11	0.117	2.25	0.067	3.42	0.178	2.29	0.130	2.88	0.117
EM- EXTERNAL REGULATION	2.63	0.454	3.58	0.097	2.52	0.552	3.67	0.127	2.71	0.469	3.51	0.079
Average EXTERNAL	**2.61**		**3.35**		**2.59**		**3.54**		**2.64**		**3.21**	
AMOTIVATION	1.60	0.136	1.50	0.057	2.030	0.610	1.45	0.078	1.48	0.161	1.96	0.817

It is observed that female student athletes demonstrate a higher intrinsic motivation in both athletics and academics over their male counterparts. Females average a 3.17 and a 2.76 overall intrinsic motivation for athletics and academics respectively, while males average a 3.09 and a 2.51. This data is in line with previous studies compiled by Turkmen, Pelletier, and Vallard (2013) that state it is widely

accepted “that females dominate the intrinsic motivation while male the extrinsic motivation”. External motivation factors affect male student athletes in athletics more than female student athletes. External Motivation subscale average is the area where males scored a higher motivation than their female counterparts.

The average of the the AMS and SMS were then used to calculate and determine if there is a correlation between athletic and academic intrinsic motivation in participating secondary students. This was done using a Pearson Correlation Coefficient Correlation test shown in Table 4. This test was used to analyze data to determine the relationship between SMS and AMS. The Pearson Correlation Coefficient is measured as an R- value. The closer to -1 or 1 indicates that there is a strong correlation between athletic and academic intrinsic motivations. If the R-value number is positive, it conveys that the athletic motivation is increasing to the decreasing academic motivation. If the R- value number is negative, it means that the athletic motivation is decreasing to the increasing academic motivation. The R-values and strength of relationship are shown in Table 3. It is important to note that correlation does not dictate causality, meaning that if students have a greater athletic intrinsic motivation toward academics they will have lower academic intrinsic motivation.

Table 3: The Strength of Relationships According to Correlation Value

Value of R	Strength of Relationship
-1.0 to -0.5 or 0.5 to 1.0	**Strong**
-0.5 to -0.3 or 0.3 to 0.5	**Moderate**
-0.3 to -0.1 or 0.1 to 0.3	**Weak**
-0.1 to 0.1	**None or Weak**

Table 4: Correlation between Motivation of SM and AM

	ALL			Females			Males	
	r	p		r	p		r	p
IM- TO KNOW	-0.526	0.188		0.705	0.051		-0.898	***0.00247**
IM-TO ACCOMPLISH	-0.497	0.210		-0.849	***0.00769**		0.651	0.080
IM-EXPERIENCE	0.859	***0.00624**		0.207	0.624		0.620	0.101
Average Intrinsic	***-0.805***	*0.531*		***-0.614***	*0.195*		***-0.895***	****0.0158***
EM- IDENTIFICATION	0.663	0.0734		0.818	***0.0130**		0.152	0.720
EM- INTROJECTED	0.860	***0.00616**		0.051	0.905		0.739	***0.0362**
EM- EXTERNAL REGULATION	-0.734	***0.0378**		-0.865	***0.00559**		-0.625	0.0974
Average Extrinsic	***0.560***	*0.248*		***0.295***	*0.570*		***0.716***	*0.110*
AMOTIVATION	**0.660**	0.0747		**0.815**	0.0136		**-0.503**	0.204

*p<0.05 = significant (The chance of randomly having this correlation is less than 5%)

Table 4 reiterates that student athletes have a higher intrinsic motivation toward athletics than academics, but the relationship is a strong negative correlation indicating that the more intrinsically motivated toward athletics the less intrinsic motivation students athletes have toward academics. This is supported by the strong negative correlation of R-Value= -0.805 overall.

Because a strong negative correlation relationship is observed between overall athletics and academics, this research study indicates that the athletic intrinsic motivation is greater than the academic intrinsic motivation. This interpretation can also be supported in the average of the SMS and AMS values in Table 1. While this negative correlation suggests that as athletic intrinsic motivation increases academic should decrease, is not confirmed in the data collection due to the female student athletes self-reporting a higher overall grade point average, as stated earlier. Further research with a larger sample pool would be necessary to further validate these findings.

Table 4 demonstrates the relationships between athletic and academic motivation of all participants. It is observed that female student athletes have more moderate correlation relationships (-0.614)**, thus** indicating that athletic motivation is less likely to affect academic motivation. Though males have much stronger relationships (-0.895), indicating one **may be** affecting the other.

The survey data indicates that the males have higher intrinsic motivation toward athletics than academics which is also seen in Table 1. For male student athletes this correlation is significant, showing that the chance of obtaining the R value of -0.895 is less than 5%.

The subscales and significance of relationships between genders is also noted in Table 4. **Participating** female student athletes show a significantly strong negative correlation in the intrinsic motivation subscale -to accomplish (task orientated or mastery) where male student athletes have a significantly strong correlation in the subscale of intrinsic motivation- to know (curiosity and exploration).

Table 5 categorizes the participants by their primary sport and notes the correlation between athletics and academics. By comparing primary sports of the student athletes and the correlation between athletics and academics it can be determined if timing of the sport, season, or if gender only sports, affect a change in the correlation.

Table 5: Average R- Value Correlation Motivation determined by Sports

	Male Only Sports		Male Avg.	Female Only Sports		Female Avg.	Both Gender Sports			Both Avg.
	Baseball (S)	Football (F)		Softball (S)	Volleyball (F)		Basketball	Cheer	Track	
Intrinsic	-0.999	-0.931	-0.965	-0.5	-0.727	-0.614	0.362	0.810	0.961	.714
Extrinsic	0.799	0.997	0.898	0.603	0.646	0.625	-0.645	-0.317	0.693	-.552
Amotivation	1.00	0.494	0.747	1.00	0.724	.862	0.967	0.801	-0.870	.299
GPA	3.58	3.04		3.72	3.79		3.62	3.17	2.93	

Table 5 continues to show the trend of males having much stronger correlation relationships, both positive and negative, than their female counterparts. Table 5 introduces sports where both genders indicate their primary sport: basketball, cheerleading, and track. It is also interesting to note that two of the three **traditionally** gender-**specific** sports are winter sports (spanning both semesters), whereas, the same gender only primary sports are played in the fall or spring semester only. Both cheerleading and track primary sport athletes show a strong positive correlation, thus demonstrating that these students have higher academic intrinsic motivation compared to their athletic intrinsic motivation; a vast difference than the overall, and male and female only sports. Basketball has a weak correlation relationship meaning that athletics and academic intrinsic motivation have little to effect on each other. These weaker correlations may be due to both male and females participants being surveyed and the calculation of averages cancelling out the wider outliers of higher intrinsic motivation for females and the lower intrinsic motivation for males.

Results of the Study

The data analysis indicates that student athletes at Marionville High School have greater intrinsic motivation toward athletics than academics. It may be that student athletes have a tendency toward higher athletic intrinsic motivation due to a sense of experiencing stimulation (Intrinsic Motivation Subscale) provided by a team atmosphere. Student athletes surveyed compete at a team level, with the exception of track where individuals can compete individually. Student athletes may also have a desire to experience stimulation through the acceptance, bonding, fun, pleasure, and satisfaction of being part of a team. As the team succeeds, individual student athletes internalize the success as individual.

In Table 2 where participants are divided by gender, it is observed that female student athletes have greater intrinsic motivation than male student athletes both in athletics and academics. Female athletes show a higher intrinsic motivation in the subscale -to accomplish, described as a sense of achievement and/or capability in athletics over those of academics. Whereas male athletes demonstrate higher intrinsic motivation in the subscale -to experience, described as a desire to satisfy the need to learn something about athletics. The realization of an expiration date on athletic competition could influence female student athletes to engage more in academics. At Marionville High School female student athletes surveyed proved a .41 point, 10% or letter grade, higher average than male student athletes. Even though female students showed a moderate negative correlation it does not signify that there is causation. The survey results analysis indicate that their increase of intrinsic motivation toward sports does not hinder their intrinsic motivation toward academics.

The examination of correlation between athletics and academics subscales of intrinsic motivation in Table 4 show an interesting anomaly. The male responses indicate a desire to demonstrate capability while females indicate desire to learn more. When placed into the context of athletics it may be explained that female student athletes are driven by the opportunities to distinguish themselves by what they are capable of doing such as physical feats during competition. Male student athletes are placed in the athletic world where being the biggest and fastest are desirable characteristics, but finesse players who are also able to learn the skill and strategy of the game are less commonly found.

When analyzing the data collected from primary sports, Table 5 indicates that male student athletes are more intrinsically motivated toward athletics in the spring than in the fall. This could be attributed to the academic year coming to an end. This is the opposite of female student athletes who demonstrate a greater intrinsic motivation toward athletics in the fall rather than the spring.

By using the SMS and AMS I was able to determine that there is a strong negative correlation between athletic intrinsic motivation and academic intrinsic motivation. It was hypothesized that student athletes are able to transfer their athletic success to academic success, which through the collection of participant grade point averages seems to be somewhat true. By utilizing the SMS and AMS, the correlation between the athletics and academics were calculated but causation was not determined. Student athletes do not transfer their intrinsic motivation from one area to the next; individually students could have high intrinsic motivation in both areas. The SMS and AMS also

calculate external motivation and amotivation which was not fully utilized in this research study but used as a minor comparison tool.

Use of Results

This data can be used to help coaches, teachers, and school administrators identify the academic benefits of athletic participation by student athletes and to provide a clearer picture of what intrinsically motivates secondary students. For example, since female athletes are more intrinsically motivated, teachers could allow these students to self-direct their learning, participate in self-paced online learning and/or participate in study hall where they could complete work before athletic competitions or practice. Coaches of female student athletes may allow for individual skill development within practice time so that female athletes are able to satisfy the intrinsic motivation to accomplish as not every athlete has the same goals in their sport.

Male student athletes have higher intrinsic motivation toward athletics and high extrinsic motivation toward academics. With this information coaches can develop practices around players' motivation types to learn and apply strategy and skills that lead to higher success rates. Teachers of male student athletes could implement reward systems or reinforce the importance of academics achievement for athletic acceptance at the collegiate level.

Conclusion

This chapter discussed the correlations and significance between athletics and academics, males and females, and sports. The SAS and ASA surveys that were collected from the 78 study participants at Marionville High School, attempt to answer

the question, *"Is there a correlation between athletic and academic intrinsic motivation at the secondary level?"* Collected data analysis proved females are intrinsically motivated more than males, and that fall main sport athletes have a greater intrinsic motivation toward academics than spring main sport athletes.

The next chapter will discuss what I have learned throughout the Capstone process, potential implications and limitations, recommendation of future studies, and a reflection of growth. It will display how the capstone project is a reflection of my educational journey.

Chapter Five: Conclusion

This chapter will include a summary of the action research capstone questions, *"Is there a correlation between athletic intrinsic motivation and academic intrinsic motivation of student athletes at the secondary level?* and the analysis results indicating that there is a strong negative correlation (R = -0.805) indicating that secondary student athletes have higher intrinsic motivation towards athletics than academics. It will summarize the capstone process, literature review, data analysis, implications and limitations discovered during the study, and suggest inquiry for future research opportunities.

Reflection of Capstone Process

As I complete this capstone project, I find myself reflecting back to the beginning versions and drafts. At the beginning I was coaching high school girls' hockey and teaching at an Alternative Learning Center in northern Minnesota. My daily life was an incorporation of my two passions, athletics and academics, ultimately inspiring this capstone. Five years later, as I am completing the project, I find myself in southwest Missouri trading teaching high schoolers for middle schoolers. The passion for athletics and academics is still within me, but it has changed from being a part of the athletics in an everyday position to enabling student athletes to use their athletics mentality in the classroom; perseverance, competition, and intrinsic motivation. This change in positions has enabled me to help non athletes in the same way I helped student athletes as a coach, teaching life skills and supporting intrinsic motivation.

Completing this capstone project has been one of the more challenging academic assignments I have taken on. As an undergraduate biology student, I was unphased by the action research and data analysis. My struggle came with the writing of the literature review and incorporating my personal story into the capstone project as a whole. Why did I come to this research idea?; How will it make me a better teacher?; What growth have I seen in myself? These questions had no science based backing for me to examine. Now in the final phase of the capstone process, I am able to reflect on my growth and identify the implications of my research on my teaching pedagogy and student interactions. With the knowledge that I have gained while working on this capstone project, I will be able to continue to effectively identify and support various student motivation styles in my classroom.

Literature Review and Major Findings

Through the literature review I was able to fine tune research ideas and determine the best course of action for studying intrinsic motivation of student athletes. A majority of published articles focus on collegiate athletes, the data analysis of my findings on high school student athletes was similar in regards to motivation of genders. Female student athletes tend to have higher GPAs and higher intrinsic motivation in both athletic and academic settings. While male student athletes generally have lower GPAs and thrive from external motivational factors.

Students and student athletes who display higher levels of intrinsic motivation are the students who reach higher success in athletic and academic settings. The motivations vary from student to student depending on subject, setting and teaching styles but by

continual studying of students and student athletes' motivation, teachers and coaches will be able to better manage their students, time, and foster higher success levels for classes and learners as supported by Turkmen (2013), Amarose & Horn (2010), and McAuley, Duncan & Tammen (1989).

Limitations and Implications

The limitations of the action research on intrinsic motivation, is the size of Marionville High School student athlete population. The total number of participants was 78. The survey differentiated by students' age, gender, and primary sport.

Marionville High School adopted a new dual sport participation policy for the Spring Sport season of 2015. This was the first time students are allowed to participate in more than one sport during a season. In the survey, students were asked to identify their primary sport, if they participated in more than one sport. Of the 78 participants:

- 30% of students indicated participation in only one sport
- 30% of students indicated participation in two sports
- 20% of students indicated participation in three sports, and
- 20% of students indicated participation in four sports.

By requiring students to identify their primary sport, their data was analyzed only for that sport. It may be that higher intrinsically motivated student athletes participate in multiple sports more than just one particular sport.

As additional limitation involved utilizing the Pearson Correlation test to determine correlations because it does not identify causation. I believe that this limitation

could be resolved through interviewing the students about their views of their athletic and academic success, and how they see, feel, or perceive how one might affect the other.

By being a practicing teacher in Marionville High School at the time student athletes were participating in my research study and having daily interaction with the participating student athletes, my knowledge, relationships, and daily interaction may have influenced responses. Through interactions with participating student athletes and my past history as a student athlete, I could have a bias towards student athletes who demonstrate higher intrinsic motivation in their academic pursuits. As a student athlete in high school and college, it was athletics that taught me the perseverance and struggles of practice leading to success, which I was able to transfer to my academics. These limitations could be resolved through surveying student athletes at other schools and having others interpret the collected data.

There are also many implications for my research useful to school administrators, teachers, coaches, and student athletes. School administrators and teachers may determine that student athletes in season for their sport may participate in online academics or independent study classes that require higher intrinsic motivation but allow students to leave classrooms for athletic practices or contests. Coaches may use the information in this research to develop practice plans to allow for student athletes time for self-directed skill development. Student athletes may able to acknowledge their autonomy in academics and athletics with the information from this research. By developing strong intrinsic motivation in student athletes, they may be able to strive for higher levels of success.

Future Research

After investigating the limitations and implications of my capstone action research, I believe that they, themselves, would be the source of future research. By expanding the surveyed population size, to surrounding schools or the Mid-Lakes Athletic Conference, which Marionville is a part of, it would offer a better representation of the correlation student athletes have between athletic and academic intrinsic motivations. With a better representation of the correlation between athletic and academic intrinsic motivation, I would be able to better incorporate self-directed and autonomous learning techniques into my classroom. Through mastering of autonomous classroom techniques, with student athletes, I would also be able to reach out to non-traditional students and foster classroom academics beyond the four concrete walls of a classroom.

Future analysis into the number of sports the student athlete participates in, and/or in which season the sports fall; fall, winter, spring, may offer more precise insight into the intrinsic motivation of student athletes. For example, if students show more academic intrinsic motivation in the fall than in the spring it may be that the ACT and other standardized testing could be better suited to be administered at these times aligning with higher student motivation levels.

It would also be beneficial to question students about how they perceive intrinsic motivation on both the athletic and academic level: Do they use transfer any motivational traits, to know, to experience, to accomplish between athletics and academics? What are the external motivational forces that drive them? Are their academic subjects that they are more intrinsically motivated towards? Intrinsic

motivation lends itself to multiple opportunities for future studies incorporating athletics and academics.

Growth of Author

As stated earlier, the most difficult part of the capstone process was placing myself within the scope of the research and then viewing the growth I was making. With my background in biology, I recognize that science demands researchers be objective and separate from the research. Reflection has allowed me to see the journey that I have made. I started the process as a first year teacher in northern Minnesota surrounded in a whirlwind of coaching and teaching every day. Now I reside and work in southern Missouri where most female student athletes play sports that I did not. My background as a coach and teacher has enabled me to reach out to student athletes and aid them in scaffolding success for themselves. As a coach and teacher it is been my responsibility to prepare, and condition students, to be autonomous life learners. This capstone action research highlighted the importance of making this more possible with student athletes by developing and incorporating self-directed learning in my classroom. Identifying the intrinsically motivated learners and allowing them to self-regulate their learning around an athletic schedule allows the student athlete to develop and support the liberty they need and for me to focus on other individuals who require more assistance.

Conclusion

Through this capstone I have discussed my journey in researching the question: "*Is there a correlation between athletic and academic intrinsic motivation in student athletes at the secondary level?* The results, (R = -0.805), indicate a strong negative

correlation that indicates student athletes have higher intrinsic motivation towards athletics than academics. I have reviewed previous studies regarding intrinsic motivation involving athletes and students which enabled me to develop my methodology of using the Sports and Academic Motivation Surveys. When data the data was collected and analyzed, it was discovered the student athletes of Marionville High School have strong negative correlation between athletics and academics. This implies that they have higher intrinsic motivation towards athletics than academics. Though causation was not determined in this research, it is something that may be researched in the future. It was further determined that student athletes may benefit from self-guided lessons, on-line learning, or independent study halls during their athletic training seasons to offset missed classes caused by athletic engagement.

As I have completed this capstone, I have gained new knowledge about my students and new ideas various differentiation techniques I can use in my classroom to promote academic success among all my students. Developing lesson plans that are driven by intrinsic motivation may allow student athletes to engage in lessons during athletic training seasons while instilling a sense of autonomy within all students bettering their chances of success in all aspects of life.

APPENDIX A:

Intrinsic Motivation Survey

Intrinsic Motivation Survey

What is your gender*

- ❏ Male
- ❏ Female

What is your current age?*

- ❏ 14
- ❏ 15
- ❏ 16
- ❏ 17
- ❏ 18
- ❏ 19

What year do you anticipate to graduate?*

- ❏ 2015
- ❏ 2016
- ❏ 2017
- ❏ 2018
- ❏ 2019

What is your current GPA?*

Which sports do you participate in at school?*

- ❏ Football
- ❏ Volleyball
- ❏ Cheerleading
- ❏ Basketball
- ❏ Track
- ❏ Baseball
- ❏ Softball

What is your primary sport?*

- ❏ Football
- ❏ Volleyball
- ❏ Cheerleading
- ❏ Basketball
- ❏ Track
- ❏ Baseball
- ❏ Softball

Sports Motivation Survey

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you presently practicing your sport.
1= Does not correspond at all
2= Corresponds a little
3= Corresponds a lot
4= Corresponds exactly

Why do you practice your sport?

For the pleasure I feel in living exciting experiences*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure it gives me to know more about the sport that I practice*

1 2 3 4

Does not correspond at all — Corresponds exactly

I used to have a good reason for doing my sport, now I am asking myself if I should continue doing it.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure of discovering new training techniques*

1 2 3 4

Does not correspond at all — Corresponds exactly

I don't know anymore; I have the impression of being incapable of succeeding in this sport.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because it allows me to be well regarded by people that I know*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because, in my opinion, it is one of the best ways to meet people.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because it is absolutely necessary to do sports if one wants to be in shape.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because it is one of the best ways I have chosen to develop other aspects of myself.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure I feel while improving some of my weak points.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the excitement I feel when I am really involved in the activity.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I must do sports to feel good myself.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the satisfaction I experience while I am perfecting my abilities*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because people around me think it is important to be in shape.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because it is a good way to learn lots of things which could be useful to me in other areas of my life.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the intense emotions I feel doing a sport that I like*

1 2 3 4

Does not correspond at all — Corresponds exactly

It is not clear to me anymore; I don't really think my place is in sports.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure that I feel while executing certain difficult movements.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I would feel bad if I was not taking time to do it.*

1 2 3 4

Does not correspond at all — Corresponds exactly

To show others how good I am at my sport.*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure that I feel while learning training techniques that I have never tried before.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because it is one of the best ways to maintain good relationships with my friends.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I like the feeling of being totally immersed in the activity.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I must do sports regularly*

1 2 3 4

Does not correspond at all — Corresponds exactly

For the pleasure of discovering new performance strategies.*

1 2 3 4

Does not correspond at all — Corresponds exactly

I often ask myself, I can't seem to achieve the goals that I set for myself*

1 2 3 4

Does not correspond at all — Corresponds exactly

Academic Motivation Survey

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you presently practicing your sport.
1= Does not correspond at all
2= Corresponds a little
3= Corresponds a lot
4= Corresponds exactly

Why do you go to school?

Because I need at least a high-school degree in order to find a high-paying job later on.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I experience pleasure and satisfaction while learning new things.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I think that a high-school education will help me better prepare for the career I have chosen.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Because I really like going to school.*

1 2 3 4

Does not correspond at all — Corresponds exactly

Honestly, I don't know, I really feel that I am wasting my time in school.*

1 2 3 4

Does not correspond at all Corresponds exactly

For the pleasure I experience while surpassing myself in my studies.*

1 2 3 4

Does not correspond at all Corresponds exactly

To prove to myself that I am capable of completing my high-school degree*

1 2 3 4

Does not correspond at all Corresponds exactly

In order to obtain a more prestigious job later on.*

1 2 3 4

Does not correspond at all Corresponds exactly

For the pleasure I experience when I discover new things never seen before.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because eventually it will enable me to enter the job market in a field that I like.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because for me school is fun*

1 2 3 4

Does not correspond at all Corresponds exactly

I once had good reason for going to school; however, now I wonder whether I should continue.*

1 2 3 4

Does not correspond at all Corresponds exactly

For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because of the fact that when I succeed in school I feel important*

1 2 3 4

Does not correspond at all Corresponds exactly

Because I want to have "the good life" later on*

1 2 3 4

Does not correspond at all Corresponds exactly

For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because this will help me make a better choice regarding my career orientation*

1 2 3 4

Does not correspond at all Corresponds exactly

I can't see why I go to school and frankly I couldn't care less.*

1 2 3 4

Does not correspond at all Corresponds exactly

For the satisfaction that I experience when I am in the process of accomplishing difficult academic activities.*

1 2 3 4

Does not correspond at all Corresponds exactly

To show myself that I am an intelligent person*

1 2 3 4

Does not correspond at all Corresponds exactly

In order to have a better salary later on.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because my studies allow me to continue to learn about many things that interest me.*

1 2 3 4

Does not correspond at all Corresponds exactly

Because I believe that my high school education will improve my competence as a worker.*

1	2	3	4	
Does not correspond at all				Corresponds exactly

For the "high" feeling that I experience while reading about various interesting subjects.*

1	2	3	4	
Does not correspond at all				Corresponds exactly

I don't know; I can't understand what I am doing in school.*

1	2	3	4	
Does not correspond at all				Corresponds exactly

Because high school allows me to experience a personal satisfaction in my quest for excellence in my studies.*

1	2	3	4	
Does not correspond at all				Corresponds exactly

Because I want to show myself that I can succeed in my studies.*

1	2	3	4	
Does not correspond at all				Corresponds exactly

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